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ABSTRACT

Responding to enormous enrollment increases, Mexican universities were forced to hire faculty without a Licenciatura degree (corresponds to a United States bachelors degree) and so initiated faculty development activities (FDA) to enhance the performance of underqualified and new teachers. This study assessed the impact of one of these FDAs at the Autonomous University of Aguascalientes, a public university established in 1973. A theoretical model was constructed, and a sample of 302 faculty members was selected. Quantitative information was collected and field work, i.e., observing and interviewing selected cases, was carried out. Multiple regression analysis of data, supplemented by qualitative analysis, offered a basis for the conclusions, and controlled the influence of the other variables included in the model. Results suggested that FDAs were useful for teachers; that though student ratings favored teachers who did not participate in FDAs, this may be explained by the association of inferior ratings with inexperience or insecurity; and that younger, female, part-time teachers did benefit from FDAs though it is not clear whether that improvement is due to FDAs or the effect of maturation and increased security. In addition, the study found that FDAs should be tailored to teachers with different needs. Sixteen references are offered. (JB)

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ASSESSING THE IMPACT OF A FACULTY DEVELOPMENT PROGRAM ON TEACHING QUALITY IN A MEXICAN UNIVERSITY.

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ASSESSING THE IMPACT OF A FACULTY DEVELOPMENT PROGRAM ON TEACHING QUALITY IN A MEXICAN UNIVERSITY.

ABSTRACT.

After presenting the national and institutional context of the faculty development program, the research is described.

A theoretical model was constructed, and a sample of faculty members who have and have not participated in teacher training courses was selected. Quantitative information was collected and field work was done, observing and interviewing selected cases. Multiple regression analysis of data, suplemented by qualitative analysis, offers a sound basis for the conclusions about the impact of the program on teaching quality, controlling the influence of the other variables included in the model.

INTRODUCTION.

In the last 40 years Mexico has had a tremendous growth of its educational system, that has been particularly impressive in higher education.

This development can be appreciated in the following figures:

TABLE 1. MEXICO'S POPULATION AND HIGHER EDUCATION UNDERGRADUATE STUDENTS, 1950-1990.

	POPULATION			
YEAR	TOTAL (1)	20-24 (2)	STUDENTS (3)	3/2
1950	25'791,017	2'299,334	29,892	1.3
1960	34'923,129	2'947,072	76,269	2.59
1970	50'694,590	4'287,158	251,054	5.86
1980	67'896,966	6'148,589	838,025	13.63
1990	81'140,922	8'500,000a	1'141,567a	13.43

a Approximate.

Sources: National Census, and Statistical Yearbooks by the National Association of Universities (ANUIES).

As we can see, the rate of undergraduate students in higher education in relation to the population in the 20 to 24 years group has been multiplied by 10 in only 30 years, from 1.3 in 1950 to 13.63 in 1980, and then remaining at the same level from 1980 to 1990.

These more than a million students are distributed in 718 very different institutions, from huge Mexico City's National Autonomous University (UNAM), with 145,000 students in the undergraduate level (licenciatura), to hundreds of minuscule "Normal Schools", for the trainning of elementary school teachers.

Between those extremes we can find large and medium size State Universities, smaller public Technological Institutes, and private institutions, as follows:

TABLE 2.MEXICO'S SYSTEM OF HIGHER EDUCATION INSTITUTIONS.

	HEIs (1)	UNDERGRADUATE STUDENTS (2)	MEDIUM SIZE (2/1)
PUBLIC	383	945,559	2,469
- Universities	40	715,850	17,896
- Technological Inst.	97	166,508	1,717
- Normal School	225	55,187a	245
- Other	21	8,014	382
PRIVATE	335	196,008	585
- Universities	61b	131,169	2,150
- Schools	154	56,650	368
- Normal Schools	120	8,189a	68
TOTAL	718	1'141,567	1,590

a Approximate.
b From these, 30 are different units of 5 multicampus institutions.
Source: 1990 Statistical Yearbook of the Nat. Ass. of Universities (ANUIES).

It is important to point out that many mexican Universities also control some High Schools, and often their total enrollment includes 50% or more of high school students, as it is the case for Mexico City's University (UNAM), with a huge total of almost 300,000 students. But in this paper we will limit ourselves to the LICENCIATURA level, that is the undergraduate level which roughly corresponds to the BA or BS in the american system; but it is also worth noting that in Mexico many of the professions that in the USA require a Master's, or even a PhD degree, require only a LICENCIATURA (or a BA degree), as it is the case for medicine, architecture, civil engineering, law, bussiness administration, etc.

The enormous enrollment increase, from the 60s on, produced very strong faculty shortages that leaded to the engagement of many university teachers without even the LICENCIATURA degree.

As a consequence of that, mexican HE institutions started also developping Faculty Development Activities (FDA).

On one hand, there was a strong scholarships' program, that only from 1971 to 1981 (indeed an affluent decade for Mexico) allowed almost 40,000 BA holders to make graduate studies.(mainly Master's degrees), both in the country and abroad. But only a fraction of this total returned to their institutions as faculty members (Hirsch, 1983: 27).

On the other hand, many in-service trainning programs were developed, consisting in short courses, workshops or seminars.

The first FDA programs were introduced by Mexico City's UNAM and some large private institutions, such as the Technological Institute of Monterrey, Guadalajara's Autonomous University, and the Iberoamericana University, from 1969 on.

In 1972, the National Ass. of Universities (ANUIES) started promoting FDA in public State Universities. By 1975 many institutions started offering to their faculty what later was called "weekend Master's Degree programs".

As we have seen, during the 80s the growth of the enrollment in postsecondary institutions continued, but it was far less strong than before, because of demographic changes, and reduced attractiveness of university's careers, possibly due to a growing graduates' unemployement.

The economic crisis, from 1982, on also implicated budget reductions for universities; consequently, FDA (both, scholarships and in-service trainning) were reduced.

Until the beginning of the 80s, FDA consisted EITHER in training on behavioral objectives writing, evaluation techniques, audiovisual aids, and "group dynamics", OR in a very strong criticism against that (labeled as "educational technology", and blamed as "positivist, behaviorist, and conservative"), by means of courses or seminars on sociological aspects of education, epistemology, or critical theory.

Only very few institutions in the late 80s were offering a broader range of FDA, including training for educational administration, personal development, etc.

The institution in which the research presented in this paper was done, the Autonomous University of Aguascalientes, (UAA) is a public, State University, established in 1973, with a total enrollment in 1991 of 7,900 students, of whom 5,307 are undergraduates, in 32 different BA (LICENCIATURA) programs.

At the beginning of the study, in 1987, the faculty of the University was as follows:

TABLE 3. FACULTY OF THE AUT. UNIV. OF AGUASCALIENTES, 1987.

	TENURED	NOT TENURED	TOTAL
FULL TIME	261	72	333
PART TIME	337	273	610
TOTAL	598	345	943

Source: Statistical Yearbook, UAA, 1987-1988.

Considering only the 598 tenured memebers of the faculty, and making some equivalences, 70 (11.7%) have PhDs; 204 (34.1%) Master's degrees; 271 (45.3%) BA degrees; and 53 (8.8%) have less than a BA degree, but these are all teaching in the high school level.

Almost from its foundation in 1973, the UAA started a FD Program, that has developed as follows:

- From 1974 to 1976 short courses on "educational technology" were offered.
- From 1977 to 1982, considering that short, isolated courses were insufficient to give a sound academic training, a Master's Degree program was established. But, as usual in many other mexican HE institutions at that time, it was a "weekend program", because faculty members had to continue with their normal teaching workloads, and had to take personal time for attending courses on saturday and doing homework on sundays. The efficiency of this program was very low.
- From 1983 to 1989 a kind of intermediate solution was conceived: neither isolated courses, nor a Master's Degree, but a set of 12 short courses that together constituted a "DIPLOMA". The courses included five more theoretically oriented (in educational Philosophy, Psychology and Sociology, Philosophy of Science, and the study of the mexican HE system), and seven more practical, including instructional objectives, systems of evaluation, instructional technology, microteaching, and group dynamics.

- From 1989 on, in part as a result of the research that is reported in this paper a new FD Program has been designed.

As a whole, from 1974 to 1989 some 400 short in-service trainning courses and workshops were conducted, with a total enrollement of about 7,500 persons. More than 50% of the faculty members attended at least one course, and many attended several of them.

THE RESEARCH PROBLEM.

When the first FDA were introduced, in the early 70s, there was a pervasive conviction about the benefits that were expected from them. Naïve academic administrators believed that young university teachers without a strong academic background will become very efficient after taking a few short courses on preparing behavioral objectives and so; they also believed that, with the support of some audiovisual teaching aids learning by students will be radically improved.

But the thousands of high school graduates that were going into universities at that moment were -and are- very different from the few elite students of the 50s and before: many of these newcomers were from work class families and lacked all the traditional cultural and economic support of higher class students. To have these new students reach a learning at the level that ambitious curricula stipulated, much more was needed than a few audiovisual toys and some workshops on instructional technology.

In that way, during the late 70s and early 80s a strong criticism developed against traditional FD Programs, but no

alternatives were introduced. And both, the naive optimistic and the bitter pessimistic views were NOT supported by hard evidence. In fact almost no research or systematic evaluation has been conducted on FDA.

This was the reason for starting a research project in 1987, with the purpose of providing substantial evidence for assessing the impact of the University's FD program.

The project was concerned only with teaching oriented FDA, and NOT with the scolarships' program, NOR with subject matter centered activities.

The research problem can be stated as follows:

Is it possible to discern a noticeable impact,on the quality of teaching, of FDA that have been developped in the UAA?

THE LITERATURE REVIEW AND THE RESEARCH DESIGN.

Starting with research reviews or basic references, from older (such as Mc Keachie, 1963; Trent and Cohen, 1973; Kulik and Mc Keachie, 1975; and Burns, 1978) to more recent, as those by Lindquist (1981); Mathis (1982); Dunkin (1983); Good and Wilburn (1985); and Main (1985), a broad literature review on american and international sources was done.

For Latin American references, the UNESCO Caracas' Center, CRESALC (1985) has a comprehensive bibliography, and Garibay de Soria (1983) offers a good review.

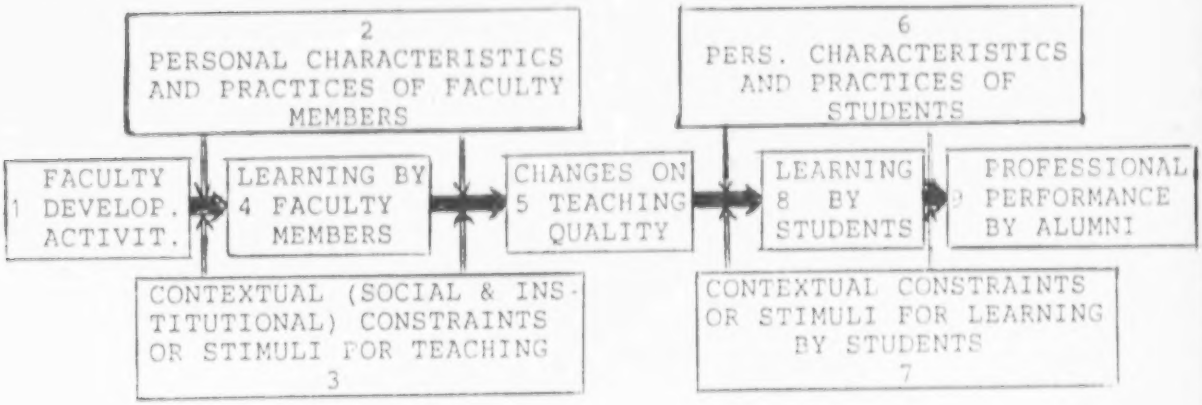
In Mexico there is a study from the 70s, (Espeleta and Sanchez, 1979), and very few other references, such as Moreno Lopez (1980), Hirsch (1983), Padilla and Martinez Rizo (1989), and Zarzar (1988).

Steaming from the literature review, a theoretical model was constructed, in which the quality of teaching is considered as the result of a complex set of interacting variables, with faculty development activities (FDA) as our strategic, "independent" variable.

Ideally, the impact of these FDA would have to be assessed by looking at the improvement of the professional performance of alumni or, at least, at the evaluation of increased learning by students.

But the direct relation that could be traced from FDA to the professional practice by alumni is crossed by many personal and contextual influences, and mediated by other instances, as it is possible to see in the following schema:

FIGURE 1. THE THEORETICAL MODEL.


2
PERSONAL CHARACTERISTICS AND PRACTICES OF FACULTY MEMBERS
6
PERS. CHARACTERISTICS AND PRACTICES OF STUDENTS
1 FACULTY DEVELOP. ACTIVIT.
4 LEARNING BY FACULTY MEMBERS
5 CHANGES ON TEACHING QUALITY
8 LEARNING BY STUDENTS
9 PROFESSIONAL PERFORMANCE BY ALUMNI
CONTEXTUAL (SOCIAL & INSTITUTIONAL) CONSTRAINTS OR STIMULI FOR TEACHING
3
CONTEXTUAL CONSTRAINTS OR STIMULI FOR LEARNING BY STUDENTS
7

In a first moment, the impact of 1 on 4 is influenced by 2 and 3: the possible impact of FDA (1) on Learning by Faculty Members (4) -that is on the acquisition by teachers of KNOWLEDGES (pedagogical theories, psychological concepts, sociological critics etc.), HABILITIES (practical tools, models

of teaching, class management or group conducting techniques etc.), OR ATTITUDES (vis a vis students as individuals or as a group, colleagues, heads of department, etc.)· is influenced both by Personal Characteristics and Practices, such as age, sex, experience, academic background, appointment, rank, etc.(2), and by context-bound social and institutional constraints or opportunities, such as work loads, salaries and fringe benefits, economic and/or symbolic stimuli for teaching performance, research vs. teaching opposition, etc. (3).

The influence of 1 on 5, passing through 4 (that is, the influence of FDA on effective Changes on Teaching Quality, through the Learning by Faculty Members, is obviously also influenced by 2 and 3, the very same kind of intervenient variables that we have just mentioned.

On the other side of the schema, Professional Performance by Alumni (9) depends on Learning during the student years (8), but obviously also on 6 and 7, that is on personal characteristics and practices of the students, and on their social and institutional conditionning.

And those two sets of variables (6 and 7) strongly influence also the relation between 5 and 8, that is the possible influence of the quality of teaching on students' learning.

As it is clearly impossible to follow all the track of influences from 1 to 9, we limited our analysis to the relation between 1 and 5, controlling by 2 and, to a lesser extent, by 3.

As FDA did NOT have a reliable evaluation system of the

learning by faculty members that participate on them (in practice every teacher who attends a FD course regularly obtains an official accreditation by the University), it was decided to skip element 4. The opinion of participating teachers about their own learning, and of responsibles of FDA about learning by teachers was considered, but only as a very limited approach to the question.

And, as the University has a Faculty Evaluation System for selection, promotion and tenure purposes, that make all students rate all their teachers at the end of every term (semester), since 1976, it was decided to take those ratings as a proxy for teaching quality, our other crucial, "dependent" variable. They are also ratings by Heads of Department and Deans, but not as complete as those by students.

So, stated in operational terms, our research problem became that of looking at the relation between participating or not in Faculty Development Activities and having high or low ratings by students, controlling several other variables.

DATA COLLECTION AND FIELD WORK.

The group of teachers to be studied was selected as follows: we restricted ourselves to the TENURED faculty members, because not tenured ones are by definition not permanent.

By August 1987, of a total of 598 tenured faculty members 35 had participated in FDA as instructors, and 315 as students, in at least one course, while 248 did not participate at all.

As teachers were not equally available, it was decided not to make a sample, but to send questionnaires (cfr. infra) to

ALL tenured faculty members, with the exception of those having participated as instructors in FDA, who were interviewed and answered a different instrument.

The nonresponse rates can be appreciated in the next table:

TABLE 4. RESPONSE AND NONRESPONSE RATES.

	QUESTIONNAIRES		RATES	
	SENT	RECEIVED	RESP.	NONR.
FACULTY MEMBERS WHO:				
DID PARTICIPATE IN FDA	315	165	52.4	47.6
DID NOT PARTICIPATE	248	137a	55.2	44.8
TOTAL	563	302	53.6	46.4

a In many cases data for these teachers were available in the institutions' files.

The representativity of this sample of 302 persons was established by looking at the proportion of responses and nonresponses by academic areas of the University, and was considered to be acceptable.

Afterwards a subsample was chosen, including all those teachers that were in the University at least since 1984, for a longitudinal analysis of changes in ratings by students from 1984 to 1987, in relation with the fact of participating or not in FDA. This subsample was formed by 151 teachers: 81 who did participate in FDA between 1984 and 1987, and 70 who did not.

In the first moment, a data base was formed with information from the files of the University about all 598 tenured faculty memebers, with personal information, including the ratings by students.

Three different questionnaires were developped and field tested, for faculty members that either served as instruc-

tors, did participate or did not in FDA. The questionnaires were distributed as has been explained before.

After doing some bivariate and multivariate analysis (cfr. infra) eight case-studies were conducted as follows:

a) two teachers with HIGH students' ratings, having participated in FDA;

b) two teachers with LOW ratings having participated...;

c) two teachers with HIGH ratings, having NOT participated in FDA;

d) two teachers with LOW ratings having NOT participated.

Every one was to be observed 6 times in a semester, each time for a one-hour class session, and with two different groups of students, as follows: at the beginning of the semester every teacher was the object of non-structured observation with two different groups; at the middle of the semester every teacher was observed again working with his two groups, but this time with a structurted approach, using Flanders' Interaction Analysis Categories. At the end of the term a third round of observation was done, this time using a simplified version of OScAR technique.

Simultaneously 4 interviews were conducted with every teacher, two at the beginning of the semester, one at the middle of it, and the fourth 3 months after the end of the study, allowing teachers to react to the first version of the report.

This schedule was followed very closely, with some exceptions: because of a registration mistake, one of the teachers selected as having NOT participated in FDA in fact

DID participate in them; all 32 interviews were actually completed, but only 39 of the 48 hours of observation scheduled.

RESULTS.

The analysis done as a first approach to the question, showed that some variables were significatively associated with the fact of participating or not in FDA:

- sex, with women participating more than men;
- age, with young teachers participating more than older ones (the mean of age is 5 years less in the group of those who did participate;
- appointment, with full timers participating clearly more than part timers;
- seniority in the University, with a clear preference of newcomers for participating in FDA over old timers (the mean of years in the University for teachers participating in FDA is 6.3, and 10.2 for faculty members who did not participate;
- also the conception that faculty members have about the requirements for being a good teacher clearley distinguish those having participated (who give more importance to their professional AND pedagogical training) from those having NOT (who underlie "innate ability" as the main condition).

On the other hand, there was no difference between participants and not participants in FDA for the following variables: rank, teaching experience and formal training.

Of the teachers who have participated in FDA, 65% said that their expectations were fulfilled very well, and 25% well, with only 10% considering that they were not fulfilled at all. The overwhelming majority also affirms that their motivation for participating in FDA is academic or for personal fulfillment.

The teachers who have not participated in FDA give the following reasons:

1) Practical difficulties, such as schedule conflict, 82%.
2) Personal-family reasons for not assuming extra work-loads 50%.
3) A negative opinion about the FDA Program, 50%.
4) Preference for other kind of courses, centered in their areas of speciality 45%.

Obviously, some of the teachers give more than one reason.

The teachers that have participated in FDA consider that they have acquired some elements through these courses, as follows:

- A better knowledge of themeselves as teachers and as persons, 81.2%.
- A better understanding of the education and learning process, and of students' characteristics, more than 60%.
- Improvement of the planning of their teaching activities, of the ability for conducting a group process, learning of new teaching techniques, and an increased sense of personal fulfillment, more than 50%.

By contrast, a majority of teachers having participated in FDA said that they did not experience improvement in laboral

satisfaction; in the knowledge of subject-matter specific teaching techniques; in the knowledge of social factors conditionning learning experiences; in the use of better methods for systematizing their own knowledge; and in the capability for critical and analytical thinking.

Concerning the perception of changes in their teaching practices:

- 55.2% of those having participated in FDA said that their teaching practices had been modified as a result of the courses, and that it had produced better learning results by students;
- 21.8% said that they also have modified their teaching practices, but they did not notice any improvement of learning by students;
- 4.2% said that their teaching practices had been modified, but NOT because of FDA;
- the remaining 18.8% said that their practices had NOT been modified, but 12.7% said that they acquired some new knowledges, but not enough for changing their teaching.

When we turn to compare ratings by students of teachers having or not participated in FDA we found that in 1984 there was a small but statistically significative difference favoring those who were NOT participating. Three years later, in 1987, there was still a difference favoring those who did not participate in FDA, but it has been reduced, and was very small, statistically not significative.

TABLE 5. STUDENT t TEST FOR MEAN DIFFERENCES.

YEAR	MEANS OF RATINGS BY STUDENTS DID PARTICIPATE	DID NOT P.	t	df	prob	F	sign
1984	24.28	26.00	-1.86	146	.065	1.04	.887
1987	26.14	27.02	-0.97	122	.334	1.99	.003

The scale for the ratings by students goes from 0 to 40.

A Factorial Analysis of data for 1984 and 1987 showed that principal effects are significative for the following variables: participation in FDA (FDA), appointment (full time vs. part time (APP), and seniority (SEN); second order interactions are significative for FDA-SEN and, to a lesser extent, for FDA-APP, and SEN-SEX.

TABLE 6. PRINCIPAL AND SECOND ORDER EFFECTS.

		PRINCIPAL EFFECTS					2D. ORDER EFF.		
YEAR		GRAL	GLOBAL	FDA	SEN	APP	FDA /SEN	FDA /APP	SEN /SEX
1984	F	1.77	2.046	3.93	3.51	---	3.01	6.95	3.06
	Sign.	.045	.075	.044	.063	---	.085	.009	.083
1987	F	2.50	4.30	4.85	3.97	14.20	9.52	---	---
	Sign.	.003	.001	.029	.048	.000	.002	---	---

Third order interactions were not significative, even with only the three more relevant variables, FDA, SEN & APP.

Finally, a backward step multiple regression analysis was done, with variables FDA, SEN, APP and AGE for 1984 and 1987 and it was found that in 1984 ratings by students are better explained by AGE and SEN, while in 1987 the influence of FDA SEN and APP is more important. Even if R and R' are not large, these results are worth noticing.

The qualitatively oriented case studies permitted the discovery of very important differences between teachers,

that are also very subtle and are not perceived by our somehow gross or dull quantitative instruments.

For instance, it appeared very clearly that there is an enormous difference between teachers who participate in FDA because of positive, intrinsic motivation, and those who did participate as a result of exigences from their Heads of Department. It was also seen that, when it is possible to establish a positive interaction climate between teachers participating in FDA, motivation is immediately improved, as are attitudes vis a vis colleagues, students, teaching itself and the institution.

For young faculty members this kind of experiences can be of crucial importance for their future as teachers.

From case studie it was also possible to identify some very precise deficiencies of the University's FDA Program, that had been an obstacle for the participation in them of more faculty members.

CONCLUSION.

With all the limits of the study, it was possible to strongly point out several things:

- FDA are useful for teachers, who tend to consider them as positive;
- Differences in ratings by students favoring teachers who did not participate in FDA do not contradict the previous statement, as inferior ratings are associated with other characteristics of inexperience or insecurity: younger, female, part time teachers DO need more FDA, DO participate more in them, DO find them useful, and DO improve their per-

formance more than those who DID NOT participate in FDA, even if it is not clear if that improvement is DUE to FDA or simply it is an effect of maturation, increased security and so. But even in this case FDA have a benefical influence.

- It is clear that FDA, as organized until 1987, DID NOT offer a good program for all University's teachers; there is a need of other elements, in particular opportunities for trainning in specific subject matters, in personal development, and in other faculty members' activities, such as research and management.
- It was clear that it was important to offer different things to different groups of teachers, according to their specific needs: very strong support and induction for new comers, and other things to old timers, etc.
- It was also very clear that some practical aspects of FDA were not adequate, such as the scheduling in some days and hours, the scarce availability of materials, etc.

With all these elements, in 1989 a deep transformation of the FDA Program of the University was undergone, and a totally new Program was established, starting in 1990.

One of the new elements of this FD Program is a permanent evaluation system that will allow a continued monitoring of it for constant improvement.

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